Allergy Abstracts

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Asthma and Hay Fever

Pulmonary Function Studies in Bronchial Asthma. 1. In the Control State.
Herschfus, J. A., Bresnick, E., and Segal, M. S.: Am. J. Med. **14**: 23, 1953.

Pulmonary function studies were performed on 42 chronic asthmatics during "completely asymptomatic" periods. The patients, whose ages ranged from 15 to 72 years, had suffered from asthma for from 4 months to 42 years. The following studies were performed: (1) resting ventilation and tidal air; (2) spirometric determinations of expiratory reserve volume, inspiratory capacity, vital capacity, maximum breathing capacity; (3) maximum expiratory velocity; (4) functional residual capacity, residual volume, total lung capacity, index of intrapulmonary mixing; and (5) arterial blood gas analyses (CO_2 and O_2) at rest and after one minute exercise.

The results of these studies showed that the vital capacity ranged between 51 and 158 per cent of the predicted normal value. The inspiratory capacity/vital capacity ratio averaged 68 per cent and the maximum breathing capacity 62.9 per cent of the predicted normal value. The longer the duration of the asthma, the lower the maximum breathing capacity tended to be. The resting ventilation ranged between 3.11 liters and 7.52 liters per minute per square meter of body surface. The index of intrapulmonary mixing varied between 1.0 and 12.12 per cent nitrogen, with an average value of 4.05 per cent nitrogen, and tended to increase in proportion to the severity of wheezing present at the time of the determinations. The total lung capacity averaged 125.8 per cent of predicted normal value. The residual volume/total lung capacity ratio

ranged between 35 and 67 per cent, with an average of 47 per cent. Arterial blood gas determinations revealed normal oxygen saturations and no retention of CO_2. The maximum expiratory velocity averaged 3.9 liters per second.

In reviewing the significance of these findings, the authors conclude that residual volume, the residual volume/total lung capacity ratio, the maximum breathing capacity, and, to a lesser degree, the index of pulmonary mixing are significantly altered in bronchial asthma. The degree of increase in total lung capacity and the residual volume/total lung capacity ratio appear to be related to the duration of the asthma.

These deviations from the expected normals point to the presence of persistent bronchospasm and emphysema during the apparent asymptomatic states of bronchial asthma. Vital capacity determinations seemed to be of no great value. F.

Pulmonary Function Studies in Bronchial Asthma. 2. After Treatment. Herschfus, J. A., Bresnick, E., and Segal, M. S.: Am. J. Med. **14**: 34, 1953.

Pulmonary function studies were performed on asthmatic patients during the same morning, before and after the administration of intravenous aminophylline or Neosuprel aerosols. An average increase of 10.6 per cent was noted in the vital capacity after aminophylline, and 16.9 per cent after the bronchodilator aerosol. There was an increase in the absolute values of both the inspiratory capacity and the expiratory reserve volume after each type of treatment, but the pretreatment abnormal ratio of these readings to the vital capacity remained unchanged. The maximum breathing capacity was increased from pretreatment level of 65.2 per cent to 82.3 per cent of normal predicted values after aminophylline, and from 62.6 per cent to 85.7 per cent after the Neosuprel inhalations. Among patients with clear lungs there was 26 per cent improvement; in patients with one-plus and two-plus wheezing, there was 40 per cent and 53 per cent improvement, respectively. Along with the improvement in the maximum breathing capacity, there was an average improvement in the index of intrapulmonary mixing of 32.7 per cent after aminophylline, and of 28.8 per cent after the bronchodilator aerosols. This observation, along with the fact that there was only minimal improvement in residual volume and in the residual volume/total lung capacity ratio, indicates that bronchial and bronchiolar obstruction is of greater importance than the size of the residual volume in determining this index.

Following treatment, the maximum expiratory velocity increased to the same extent as the maximum breathing capacity and the index of intrapulmonary mixing. There was an average improvement of 30.6 per cent with aminophylline and 58.5 per cent with the aerosols. This improvement is explained on the basis of diminished bronchial constriction and reduced turbulence as a result of treatment. No significant alteration in the average total lung capacity was observed following treatment. F.

Printers' Asthma. Fowler, P. B. S.: Lancet **2**: 755, 1952.

Thirty-two cases of asthma occurring in printers working with gum acacia and isopropyl alcohol sprays were analyzed. The sprays were used as a fine mist to prevent the sheets from smudging in color printing. Sixty-three printers who worked in firms doing color printing were studied and more than 70 per cent were found to be either definite asthmatics or individuals with obvious early symptoms of allergic reactivity of the bronchial tissues. The average duration of exposure before asthma became manifest in the 32 known asthmatics was 4.8 years. Some men were exposed for 10 years before symptoms developed. Those with definite atopic backgrounds required less time

to develop asthmatic symptoms. Since gums are widely employed in various industries, the author discusses their importance as a causative agent in allergic disease. It is suggested that dextrose be substituted for gum acacia in the printing industry. R. W.

Treatment of Asthma With Nitrogen Mustard and Resulting Observations on Nature of Allergic Diseases and Therapy of Dysreaction. Jiminez-Diaz, C., Merchante, A., and Perianes, J.: Rev. clín. españ. **45**: 153, 1952.

Because of the similarity of the action of cortisone and ACTH to that of nitrogen mustard, the latter was used in the treatment of 17 cases of intractable asthma and status asthmaticus. Complete cessation of symptoms occurred in 11 patients. Five patients remained well for six months and 3 were well for from ten to fourteen months. Relapse occurred in 35.2 per cent of the cases, but in most instances the symptoms were less severe. H.

Bronchial Asthma: Diagnosis and Surgical Treatment. Hansen, J. L.: Nord. med. **48**: 959, 1952.

High thoracic sympathectomy or pulmonary vagotomy was performed on 37 cases of "pure" bronchial asthma. Vagotomy, usually bilateral, was carried out in 2 stages. Sympathectomy, technically a more difficult but a less radical procedure, was the preferred method for older patients. Three of the 37 patients died postoperatively. Follow-ups from one to eight years later revealed that satisfactory results had been obtained in 7 of 18 patients who had had sympathectomies and in 5 of 12 patients who had had vagotomies. H.

Miscellaneous Allergies

Secondary Thrombocytopenic Purpura Following DDT Exposure. Scalettar, H. E., and Mazursky, M. M.: New York State J. Med. **52**: 2808, 1952.

An 11-month-old infant was admitted to the hospital with epistaxis, petechiae, and ecchymoses of one week's duration. There was no history of injury and the child had received no medications recently. The family history was negative for bleeding or allergic tendencies. For more than a week, the patient's home had been sprayed daily with a 5 per cent DDT mixture and a powder containing DDT had been placed along the walls. The infant had exposure to these compounds in the course of crawling and playing on the floor. On physical examination, the only findings were large ecchymoses and numerous petechiae diffusely distributed on the body. The platelet count was 30,000 per centimeter; clot retraction was negative after eight hours, Rumpel-Leede test was strongly positive, coagulation time was four minutes, and the bleeding time was over ten minutes. The bone marrow study showed adequate megakaryocytes, but no platelets. Within a few days while in the hospital and without any specific therapy, the lesions began to fade. The blood picture returned to normal about one month after admission to the hospital. The etiologic factor was considered to be the DDT, rather than the vehicle in which it was suspended. B. S.

Polyarteritis Nodosa After Thiouracil. Dalgleish, P. G.: Lancet **2**: 319, 1952.

A case of fulminating polyarteritis which followed repeated courses of thiouracil is reported. During a four-month course of therapy for hyperthyroidism, the patient developed a rash, ankle edema, and thrombophlebitis of her legs. Following the withdrawal of thiouracil and the institution of bed rest and local therapy, her symptoms cleared rapidly. Ten days later,

she reinstituted thiouracil therapy and almost immediately developed weakness, malaise, pain, and fever. Within two weeks following the start of her second course of thiouracil, the patient expired. On post-mortem examination, typical signs of diffuse vascular disease were found throughout the body. The author suggests that, since in this case and in others previously reported fatal reactions always occurred subsequent to repeated courses of thiouracil, such reactions were most likely due to a sensitivity phenomenon. R. W.

A New Migraine Therapy. Foldes, E.: New York State J. Med. **52**: 1307, 1952.

Based on the concept that disturbed water and electrolyte metabolism may produce migraine attacks, diuretic drugs were used in the treatment of 17 patients. The therapeutic regime included aminophylline, administered orally or rectally, or a combination of aminophylline and intramuscular injections of the mercurial diuretic, meralluride. The results were considered as excellent in 10 of the 17 cases. Improvement was noted in the severity, frequency, and duration of the migraine attacks, or in all 3 of these characteristics. The maximum therapeutic response was usually attained after eight to twelve weeks of therapy. The remissions continued for periods ranging from one to fifteen months. After cessation of therapy the best results were obtained in those cases in which the drugs were administered for three months or more. B. S.

The Use of Cortisone and ACTH in Treating Reactions to Penicillin. Hensler, N. M., Wurl, O. A., and Gillespie, J. O.: U. S. Armed Forces M. J. **3**: 199, 1952.

ACTH and cortisone were employed in the treatment of 8 patients with severe penicillin reactions. All except one patient were men ranging in age from 20 to 40 years. Most of them had the typical signs and symptoms of drug sickness. Symptoms subsided dramatically and promptly in most cases with the institution of therapy. Recurrence of symptoms after withdrawal of the drugs was not uncommon. E. W.

Clinical Picture Resembling Infectious Mononucleosis, Caused by Para-Aminosalicylic Acid. Sjoukes, P.: Nederl. tijdschr. v. geneesk. **96**: 1977, 1952.

Five patients were observed in whom a clinical syndrome resembling infectious mononucleosis developed following the administration of para-aminosalicylic acid. Symptoms included headache, fever, general malaise, exanthem, swelling of lymph nodes, and a blood picture consisting of lymphocytosis with pathologic mononuclear cells. Three of the 5 patients had splenomegaly. The symptoms cleared when the medication was discontinued and recurred when treatment was resumed. The Paul-Bunnell reaction was negative in all 5 cases. The author assumes that the clinical picture encountered was the result of hypersensitivity to p-aminosalicylic acid. H.

Adrenocorticotropic Hormone (ACTH) and Cortisone: Their Effect on Intradermal Reactions. Anderson, E.: Acta allergol. **5**: 58, 1952.

No changes in the size of positive skin reactions to house dust or to histamine were observed in 4 patients following treatment with either ACTH or cortisone. A measurable reduction of the cutaneous reaction was noted in cortisone-treated patients following a subcutaneous injection of 0.3 c.c. of Adrenalin. This might be attributed to a fall in the eosinophile content of the skin.

The literature on the use of ACTH and cortisone in the treatment of bronchial asthma is reviewed. H.

Anaphylaxis

Repeatable "Microshocks" of Constant Strength in Guinea Pig Anaphylaxis. Herxheimer, H.: J. Physiol. **117**: 251, 1952.

Guinea pigs were injected intramuscularly with crystalline egg albumin. Twenty-one days later, they were placed in a relatively airtight glass case and exposed to an aerosol vapor of egg albumin. Within fifteen to sixty seconds after exposure, the animals began to develop typical mild shock symptoms. The time elapsing between the initial exposure and the onset of convulsions was called the preconvulsion time. When the pigs were re-exposed daily in order to produce repeated mild shocks, the preconvulsion time was lengthened 30 to 50 per cent each day. After 4 to 6 daily exposures, the animals were practically desensitized. When an interval of eight to ten days was allowed to elapse before the next exposure, the animals regained their sensitivity. When the interval between exposures was shortened to from two to seven days, the animals were in an intermediate stage between desensitization and resensitization. The preconvulsion time could be stabilized at this stage by adjusting the interval between exposures according to the individual reactions of the guinea pig. It is suggested that, although the technique of producing repeated mild shocks has certain disadvantages, it is useful for testing quantitatively the action of compounds which counteract or enhance anaphylactic shock. R. W.

Protective Effect of Cortisone on Induced Asthma in the Guinea Pig. Feinberg, S. M., and Malkiel, S.: Proc. Soc. Exper. Biol. & Med. **81**: 104, 1952.

Guinea pigs were passively sensitized with homologous antiovalbumin serum. Two days later, the animals were subjected to ovalbumin aerosol introduced into a chamber. One-half of the animals were treated with cortisone prior to the antigen exposure. It was found that the hormone-treated animals tolerated the aerosol for an average of about five minutes before the onset of symptoms of asthma, whereas the control animals tolerated it for an average of two and one-half minutes. The authors conclude that cortisone does play a protective role in the anaphylactic type of hypersensitivity. B. S.

Skin Tests on Serum-Sensitized Guinea Pigs. Winter, L. B.: J. Physiol. **115**: 317, 1951.

Forty-four guinea pigs were sensitized with horse serum by the intravenous or the intraperitoneal route. Eighty-three days later, intracutaneous skin tests were performed with undiluted serum on the area over the back of the head. The head area was chosen for skin testing since previous work had shown that this section of guinea pig skin responded maximally to histamine liberators. Saline injections on the contralateral side were employed as controls. Negative skin reactions were obtained in all animals. After they had been skin tested, the animals were challenged intravenously with horse serum. Thirty of the animals died almost immediately in anaphylactic shock. R. W.

Pharmacology, Physiology, and Pathology

Inhibition of Rapid Production of Antibody by Cortisone. Study of Secondary Response. Fischel, E. E., Vaughan, J. H., and Photopoulos, C.: Proc. Soc. Exper. Biol. & Med. **81**: 344, 1952.

Rabbits were sensitized to egg albumin by several different methods. After a rest period of two months, the animals were separated into 2 groups, comparable according to the method of prior immunization and antibody levels previously attained. The fact that there was an equal distribution among the 2 groups was demonstrated by a comparison of the antibody levels done twelve and six days before the experiment. Both groups of animals were then injected intravenously with egg albumin. One group of animals was treated with daily doses of cortisone for four days before and thirteen days after the intravenous injection. The second group served as the control. Five days after the intravenous antigen injection, a precipitous rise occurred in the antibody levels of the control animals. Further increases in antibody were found by the thirteenth day after the antigen stimulus in this group. The antibody levels in the cortisone-treated animals did not rise during the experimental period above the levels present prior to the antigen injection. A high incidence of diarrhea and death occurred among the cortisone-treated rabbits. This was not regarded as influencing the results of the experiment. This study indicates that "cortisone markedly inhibited the rapid production of antibody associated with the specific anamnestic or secondary response."

B. S.

The Influence of Cortisone on the Passive Transfer of Tuberculin Hypersensitivity in the Guinea Pig. Cummings, M. M., and Hudgwins, P. C.: J. Immunol. **69**: 331, 1952.

Five groups of guinea pigs were sensitized to tuberculin by subcutaneous injections of heat-killed human tubercle bacilli suspended in mineral oil. Three weeks following sensitization, all the animals showed positive skin reactions to tuberculin except one group which had received continuous cortisone therapy during the development of sensitivity. In the hormone-treated pigs, much smaller and less intense reactions were obtained. Peritoneal exudates were then produced by the injection of mineral oil into the abdominal cavity. Forty-eight hours later, the animals were sacrificed and the peritoneal cavities washed with Tyrode's solution. The peritoneal washings were centrifuged and the cells were washed several times and resuspended in Tyrode's solution. The cell suspension was injected intraperitoneally into the recipient pigs, which were tested for skin sensitivity with 0.1 ml. of Old Tuberculin twenty-four, forty-eight, and seventy-two hours following cell transfer. One group of donor animals received cortisone for three days prior to and for two days during exudate formation. A group of recipient animals was given cortisone daily for three days before and two days following peritoneal cell transfer.

Positive reactions were obtained in all the recipient guinea pigs irrespective of cortisone administration to the donor or the recipient animals. Recipient guinea pigs receiving cortisone at the time of cell transfer showed diminished reactions at twenty-four and forty-eight hours, but showed reactions comparable to those observed in the other groups seventy-two hours after cell transfer. Although cortisone suppresses tuberculin skin reactions, it does not interfere with either antibody production or the passive transfer of cellular tuberculin hypersensitivity.

R. W.

The Circulatory Consequences of Pneumoperitoneum in Pulmonary Emphysema. Furman, R. H., Blake, T. M., and Stahlman, M. T.: J. Clin. Investigation **31**: 630, 1952.

Seven severely emphysematous subjects were studied by cardiac catheterization while at rest and after exercise. Following pneumoperitoneum,

resting heart output values showed only slight changes but exercise increased the heart output. Prior to pneumoperitoneum, exercise in these subjects decreased the cardiac output. The post-pneumoperitoneum improvement on exercise was associated with increased oxygen consumption. The mechanisms probably involve increased intrapleural-intraperitoneal pressure differentials with improved pulmonary gas mixing. K.

Release of Histamine From Skin and Muscle in the Cat by Opium Alkaloids and Other Histamine Liberators. Feldberg, W., and Paton, W. D. M.: J. Physiol. **114**: 490, 1951.

The action of histamine liberators, such as propamidine, d-tubocurarine, morphine, codeine, papaverine, thebaine, and apomorphine, was tested on an isolated perfused gastrocnemius muscle and on an isolated piece of cat skin. The tissues were perfused from the artery and the effluent collected and assayed for histamine. When control solutions were perfused, usually no histamine or only minimal traces were detectable in the effluent. Following perfusion with the liberators, histamine was consistently found in the fluid coming from perfused tissues. The skin was found to yield larger amounts of histamine than the muscle and is, therefore, probably the shock organ of the cat. It is suggested that the hypersensitivity of the skin in certain patients following the administration of various opium preparations and the pruritus and sneezing of the opium addict may all be attributable to histamine release. It is further postulated that the adverse effect of opiates in patients with bronchial asthma or other atopic illnesses may be due to histamine release. R. W.

Influence of Nitrogen Mustard Upon Reactions to Bacterial Endotoxins: Shwartzman Phenomenon and Fever. Bennett, I. L., Jr., and Cluff, L. E.: Proc. Soc. Exper. Biol. & Med. **81**: 304, 1952.

Rabbits which developed positive Shwartzman reactions were divided into 2 groups. One group was treated with nitrogen mustard and the other with L-cysteine and nitrogen mustard. The group treated with nitrogen mustard alone showed a marked leukopenia from two to six days later, during which period the Shwartzman reaction was negative. The leukopenic effect of nitrogen mustard was inhibited in the cysteine-treated group, but the Shwartzman phenomenon was not inhibited in these animals. Thus, the importance of the role of the leukocyte in the Schwartzman reaction was confirmed. In those animals in which the reaction was inhibited by nitrogen mustard, Thorotrast failed to overcome the inhibitory effect. This was in contrast to the observation that Thorotrast abolishes natural or acquired resistance to the Shwartzman reaction. Nitrogen mustard-treated rabbits responded with a febrile response to either typhoid vaccine or to P-25 polysaccharide, despite the induced leukopenia. This indicates that the production of fever by bacterial materials is not dependent upon the presence of normal numbers of circulating leukocytes. B. S.

Shwartzman Phenomenon. III. Modifications of Nitrogen-Mustard Suppression. Schlang, H. A.: Proc. Soc. Exper. Biol. & Med. **81**: 274, 1952.

Rabbits treated with nitrogen mustard demonstrated a leukopenia and a concomitant suppressive action on the Shwartzman phenomenon. When the animals were pretreated with cysteine, the leukopenia and the suppressive action on the Shwartzman reaction were inhibited. It was found that repeated daily intracutaneous injections of bacterial toxin were also capable of inhibiting the leukopenia and suppressive action on the Shwartzman phe-

nomenon induced by nitrogen mustard. These findings furnish further evidence of the relationship between the presence of leukocytes and the production of the Shwartzman phenomenon. B. S.

Deposition of Small Doses of Injected Antigen in Rabbits. Crampton, C. F., and Haurowitz, F.: J. Immunol. **69**: 457, 1952.

Small amounts of I^{131} iodo-ovalbumin were injected intravenously into rabbits. The proteins of the organs and subcellular fractions were isolated and their radioactivity measured by means of a thin-window mica Geiger counter. The lung protein was found to contain an unusually high percentage of antigen when this antigen dose was small. When the antigen dose was large, only a small percentage of it was bound by the lung. Evidently the lung has the capacity to fix a limited amount of antigen during its passage through the lung. The intracellular distribution of antigen in the liver and spleen was the same whether the dose was small or 1,000 times higher. It was deposited primarily in the cytoplasmic granules. The amount of radioactivity found in the mitochondrial fraction of the protein was about three or four times greater than that found in whole liver or spleen homogenate. Following the injection of tracer quantities of antigen, deposits were found intracellularly in the same pattern as when large doses were used, a finding which strongly suggests that the cytoplasmic granules are involved in the process of antibody formation. R. W.

Effect of Adrenalectomy on Rate of Metabolism of Histamine in the Mouse. Schayer, R. W., Smiley, R. L., and Kennedy, J.: Proc. Soc. Exper. Biol. & Med. **81**: 416, 1952.

Adrenalectomized or sham-operated mice were injected intraperitoneally with radioactive histamine three days after operation. At various intervals after the histamine injection, the mice were killed and immediately frozen in dry ice acetone. The entire carcasses were then analyzed for radioactive histamine. There was no significant difference in the rate of histamine destruction in adrenalectomized and in sham-operated mice. These results are in contrast to those obtained in previous studies by other workers. The findings suggest that histamine inactivation is not a function of the adrenal cortex under physiologic conditions. B. S.

Blood Pressure and Allergy. Quarles Van Ufford, W. J.: Acta allergol. **5**: 113, 1952.

Repeated blood pressure determinations were made on 100 allergic patients, 100 controls with furunculosis, and on 100 normal subjects. A lowered blood pressure was found in 50 per cent of the cases with asthma and vasomotor rhinitis, and in 36.5 per cent of patients with hay fever. A decreased blood pressure was found in 25 per cent of the control groups. These findings confirm other published reports on this subject. No marked differences in low blood pressure values were noted when 100 patients with infectious asthma were compared with a similar number of noninfectious cases. H.

The Effect of Environmental Temperature on the Immune Response of Mice to Tetanus Toxoid. Ipsen, J., Jr.: J. Immunol. **69**: 273, 1952.

Three groups of mice were maintained at 6°, 25°, or 35° C. for fourteen days during immunization with tetanus toxoid. The animals were then transferred to room temperature and challenged with 20 lethal doses of tetanus toxin. Equal numbers of offspring from the same litter were distributed

evenly throughout the 3 groups in order to counteract the inherent variation in response to toxoid observed in animals of different litters. Mice exposed to warm temperatures during immunization showed a higher degree of immunity than animals maintained at low temperatures. Antibody production was inhibited by cold, but this effect could be overcome if the animal was given sufficient antigenic stimulation. The action of the toxin on unimmunized animals was delayed by cold and accelerated by warm temperatures. Animals with a limited degree of acquired immunity withstand the effect of toxin better in a cold than in a temperate environment, suggesting that the toxin-antitoxin combination is not affected by ambient temperature. The author presents a detailed discussion of the between-litter and within-litter variance among the laboratory animals employed in his experiments with respect to resistance to toxin and ability to produce antitoxin. "The term immunizability is proposed to describe the inherent attributes of the host which determine the intensity of the immune response." R. W.

Morning Changes in Number of Circulating Eosinophils in Infants. Halbert, F., and Ellstrom, R. A.: Proc. Soc. Exper. Biol. & Med. **80**: 747, 1952.

Eosinophil counts were performed on 2 groups of infants, ranging in age between one day and seven months in one group and over fifteen months in the other group. The eosinophil counts were done at 6:30 and 9:30 on the same morning. In the younger group, the 9:30 count showed an average increase over the 6:30 figure. Among the infants over 15 months in age, an eosinopenia similar to that found in adults was noted at 9:30 A.M. The absence of endogenous morning eosinopenia in the younger group seems to indicate that eosinophil variations during early infancy lack the 24-hour spacing noted later in life. The endogenous morning eosinopenia has been shown to be synchronized with initiation of daily activities. B. S.

Eosinopenia and Degenerating Eosinophilic Leukocytes in Blood. Padawer, J., and Gordon, A. S.: Proc. Soc. Exper. Biol. & Med. **80**: 581, 1952.

Rats normally have a small number of degenerating eosinophilic leukocytes in the peripheral blood which are referred to as small eosinophils. It has been found that these small eosinophil forms arise from normal eosinophilic leukocytes through degenerative processes involving both the nucleus and cytoplasm. The nucleus breaks down into fragments that no longer stain with Giemsa and the cytoplasmic granules become densely packed to form masses that stain intensely with eosin or phloxine. Eosinophil counts were done on the peripheral blood of rats before and at various intervals after the subcutaneous injection of epinephrine or cortisone. An immediate increase was found in the number of degenerating eosinophilic elements in the peripheral blood after the injection and this increase was maintained throughout the duration of the peripheral eosinopenic state. These findings support the idea that the eosinopenia caused by adrenal hormones and stress is the result of eosinophilic cell destruction. B. S.

New Slow Acting Epinephrine Solutions. Results of Therapy With Modified Epinephrine Preparations. Ouer R. A.: Ann. Allergy **11**: 36, 1953.

The propylene glycol ester of alginic acid can be readily combined with epinephrine to produce a nitrogen-free, slow-acting sympathomimetic medication. The concentration of the algin or the epinephrine can be varied to control the absorption, assimilation, and action of the solution. The mixture is water soluble and is made physiologic by the addition of sodium chloride.

It is nontoxic, painless to administer, maintains its sterility, and remains stable within a wide temperature range.

Clinical tests made on patients with urticaria and asthma indicated that the algin-ephrin solution gave more prolonged relief from symptoms than did either the aqueous solution or the oily suspension of epinephrine. F.

Miscellaneous

Heterophile Antibodies of Infectious Mononucleosis. Simmonds, W. L., and Markowitz, A.: Am. J. Clin. Path. **22**: 730, 1952.

The antibody of infectious mononucleosis, originally believed to be of the Forssman type, has been found to be absorbable by beef erythrocytes, in contrast to Forssman antibody which is not absorbed by this antigen. A heterogenetic serum sickness antigen which is found in beef erythrocyte stroma and guinea pig tissue has also been isolated and its specific antibody has also been found in serum from patients with infectious mononucleosis. Sera from infectious mononucleosis patients were titrated for sheep erythrocyte agglutinins and were then absorbed with an extract of guinea pig kidney to remove Forssman and serum sickness antibodies. Their hemagglutinin titer dropped fourfold. When this same procedure was carried out on unabsorbed sera using an antigen from beef erythrocyte stroma there was a mean drop of fifty-fold in sera having an initial titer of 1:112 or greater. Kaolin used as a check on antibody absorption did not affect the titer and the beef red cell antigen did not lessen the agglutinin titer of antityphosa serum. The sera absorbed as above were then reabsorbed with concentrated "heterogenetic serum sickness antigen" prepared from guinea pig kidney and their titers were reduced to zero in 24 cases and to 1:7 residual in 5 cases. Three sera were completely absorbed by beef red cell antigen (antimononucleosis antigen) and 3 sera showed no loss in titer when absorbed by guinea pig kidney antigen. It is concluded that "the majority of the infectious mononucleosis serums tested contain both anti-mononucleosis and anti-serum sickness antibodies, the former in greater amount than the latter, but certain of these sera contain only anti-mononucleosis antibodies."

Effect of Repeated Histoplasmin Skin Tests on Skin Reactivity and Collodion Agglutination. Prior, J. A., and Saslaw, S.: Am. Rev. Tuberc. **66**: 588, 1952.

Twenty-two healthy male medical students, most of whom were lifelong residents of Ohio, were repeatedly skin tested with 0.1 ml. of a 1:100 dilution of histoplasmin. These subjects were bled for serologic studies prior to the first skin test and at weekly intervals for seven succeeding weeks just before each skin test was performed. Seven months after this test period, another sample of blood was obtained for comparison. Skin tests were read as positive if the induration obtained in forty-eight hours exceeded 5.0 mm. of 22 students in the test group, 15 showed a definite positive reaction on the initial reading. Following the repeated intracutaneous injections, there were no significant changes in the size of the histoplasmin reactions. Among the 7 students who did not react to histoplasmin, none developed skin sensitivity as a result of the repeated skin tests. All sera obtained prior to the administration of the first skin test showed no antibodies when tested by the collodion agglutination technique. In the histoplasmin-negative group, none showed any antibody response following repeated histoplasmin injections. Ten of the 15 histoplasmin skin reactors showed an alteration in antibody titers. Transient collodion agglutinations which might be considered significant appeared in the

sera of 6 reactors between the third and sixth week, and 4 others showed slight transient reactions. Thus, no significant change in skin reactivity was noted after repeated weekly histoplasmin tests for 7 weeks. However, these tests might result in "false positive" collodion agglutination reactions in individuals with positive skin reactions. E. W.

Passive Immunity to Vaccinia in Newborns. I. Placental Transmission of Antibodies. Kempe, C. H.: Yale J. Biol. & Med. **24**: 329, 1952.

A determination of the vaccinia antibodies in serum was made on 182 pregnant mothers at term and on cord bloods of their 182 newborn infants by the hemagglutination-inhibition test. Of the mothers, 102 had been vaccinated within five years and 80 had been vaccinated more than five years previously. Twenty per cent of the mothers vaccinated within the five-year period had hemagglutination-inhibition titers greater than 1:80, while 48 per cent of their infants had titers above that level. Only 14 per cent of the mothers vaccinated more than five years previously had titers greater than 1:20, while 38 per cent of their newborn infants had titers above this level. Forty-one of the 102 infants of recently vaccinated mothers had titers higher than their mothers, while only 4 had significantly lower titers. Of the 80 infants of mothers vaccinated prior to the five-year period, 30 had titers higher than their mothers and only one significantly lower. Titers obtained by this technique showed fairly close correlation with those obtained by complement fixation tests. E. W.

Fulminating Eosinophilic Pneumonitis. Capson, D. R., and Lipschutz, E. W.: New York State J. Med. **52**: 1168, 1952.

A 59-year-old man was admitted to a hospital with the history of cough, fever, and pains in his calves and thighs for about three weeks. He had had asthma for two years and had had nasal polyps removed two and four years prior to admission to the hospital. The present illness began with a "cold," after which he developed persistent cough and fever. Despite the administration of penicillin, sulfadiazine, and aureomycin, symptoms continued and the patient was referred to the hospital. Physical examination revealed polypoid tissue in both middle meati of his nose and scattered râles throughout the lung fields, especially at the bases. His temperature varied between 100 and 102° F. throughout his hospital stay. The white count ranged between 18,000 and 21,000 with about 25 per cent eosinophils. The bone marrow study revealed 10 per cent eosinophils, and 35 per cent eosinophils were found in the sputum. Persistent red blood cells were found in the urine, and urine cultures demonstrated the presence of hemolytic *Staphylococcus aureus*. A roentgenogram of the chest done three days after admission was reported as normal. However, a repeat x-ray done three days later disclosed a diffuse proliferative infiltration throughout both lung fields. Four days later, another chest x-ray showed an increase in the infiltration with moderate amount of pleural involvement. A skin and muscle biopsy was reported as normal. A biopsy taken from the nasal polypi was reported as "pyogenic granuloma; many eosinophils present." The patient was treated with aminophylline, iodides, and Pyribenzamine. The antibiotics were withheld. On the fourteenth hospital day, the patient suddenly went into shock. There was no evidence to support a diagnosis of pulmonary, cerebral, or coronary accident. The patient was treated with oxygen, plasma, Coramine, Adrenalin, and aureomycin, but died the same day. A post-mortem examination could not be obtained. B. S.

Experimental Hyperglobulinemia. The Effect of Injected Ribonucleotide on Serum Globulin Levels in Rabbits Undergoing Immunization. Richter, G. W.: J. Exper. Med. **96**: 331, 1952.

Rabbits, immunized with horse serum while receiving repeated injections of a ribonucleotide, exhibited marked enhancement of serum levels of gamma globulin and some increase in the levels of alpha and beta globulin. The greater part of the globulin so produced was found not to be specific antibody. The antibody levels of horse-serum-plus-ribonucleate-treated animals were no higher than the antibody levels of the controls, despite the striking increase in globulin levels in the former group. The administration of ribonucleate alone was followed by a slight increase in globulin levels but no precipitins for ribonucleate were detected. It is suggested that the injected nucleotide may enter cellular metabolism, particularly in cells which are actively stimulated to produce antibody globulins. The excess ribonucleate might then be utilized to an abnormally increased degree with the consequent overproduction of nonspecific globulins. K.

I. Detection of Rh Antibodies by Polyvinylpyrrolidone PVP. McNeil, C., and Trentelman, E. F.: Am. J. Clin. Path. **22**: 77, 1952.

The Plasma substitute polyvinylpyrrolidone (PVP) may be used in place of bovine albumin and AB serum in the titration of Rh antibodies. The advantages of this substitution are economy and sensitivity comparable to that of trypsin-treated red cell antigens. The preparation of, and technique for, using PVP are described in detail. K.

Diphtheria Antitoxin Formation in the Horse at Site of Injection of Toxoid and Adjuvants. Freund, J., Schryver, E. M., McGuiness, M. G., and Geitner, M. B.: Proc. Soc. Exper. Biol. & Med. **81**: 657, 1952.

A horse was given repeated subcutaneous injections of concentrated diphtheria toxoid combined with Falba, paraffin oil, and heat killed and dried tubercle bacilli. Some of the injections were made with solutions containing concentrated broth instead of the toxoid. Fluid was aspirated from the areas of inflammation produced by the injections and centrifuged. It was found that the antitoxin titer was from 2 to 7 times higher in the fluid from the sites of injections of toxoid plus adjuvants than in the blood. On the other hand, fluid from an area of inflammation produced by the injection of concentrated broth and adjuvants contained less antibody than did the blood. These findings support the conclusion that antibodies are formed at the site of injection of antigen and adjuvants. It is assumed that the adjuvant evokes an accumulation of cells which, in turn, produce antibodies. B. S.